

DES Report 2023

Experience Design to capture the Intangible Culture of Ittar Making

by

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M.Des. Interaction Design'23

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guided by

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Approval Sheet (Annapurna-DES)

The DES Project titled “**Ittar Katha: Design for Olfactory Experience**” by Annapurna Garimella, Roll Number 216330010 is approved in partial fulfillment of the Master in Design Degree in Interaction Design, Indian Institute of Technology Bombay.

A handwritten signature in black ink, appearing to read 'Ravi Poovaiah', with a stylized, cursive script.

Guide:
Prof. Ravi Poovaiah

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Abstract

“A cloudy sky overhead, feet in the grass, she was there but she had travelled back in time. Tiny droplets of rain were nostalgic of the good old childhood rainy days when she'd dance away surrounded by petrichor. The age didn't stick around for long, but the smell of fresh earth did.”

Nothing brings back a forgotten memory to life like fragrance. And the city of Kannauj proudly claims to be the traditional perfumery capital of India and the largest manufacturer of “Ittar” in the world. This centuries old art of capturing aromas in bottles is an intangible cultural heritage of Kannauj. With the water of distillation flowing through the gutters of the city and spreading the fragrance all along the streets - the occupation of traditional perfume making can be understood as the true essence and image of Kannauj. However, in the recent years, the scent of Ittar is fading away from the city. The industry is diminishing due to unfamiliarity about the value of ‘Ittar’ amongst the populace. The current scenario of the aroma industry and the magnificence of the traditional knowledge system is established through careful and thorough observation, analysis, interviews, and documentation. The project explores a design proposal to capture the plight of craftsmen who make the fragrances through the journey of a flower. To help participants appreciate the “true value” of the Indian fragrance Ittar - an interactive experience is designed to explain the cultural significances and complexities involved in the occupation.

Primary & Secondary Study

The secondary study is a synthesis of understandings about the history of the city Kannauj, history and origins of the art of Ittar making in India and the process of extraction of the aromatic oils. The study is based on resources provided by the ASI museum-Kannauj along with existing research papers and documentation of soft and hard Ittar making processes in the ancient city.

makers.

The primary study mentioned in this context refers to collecting first-hand information and insights about a particular

subject through direct interaction with relevant stakeholders. This includes conducting interviews, surveys, or observational studies to gather data from sources such as factories, shops, government organizations, unions, and ittar makers. By utilizing this approach a better understanding of the subject was established

Being an under documented niche, very less sources were available online and hence primary study offered valuable insights that weren't available through other means.

Interview Prompts

Kharkhana

Name: Tina

Age: 30

SHOP DETAILS AND HISTORY

- Name of Shop: 1986
- Year of Establishment: 1986
- Number of Generations of Inheritance: 4th generation
- Number of Family members involved in the industry: family of 4
- Cultural values attached to the occupation:
- Religious values attached to the occupation:

→ Did they migrate for setting up the industry? always

→ National branches/factories:

→ National Export Cities: Mumbai, Kolkata

10. International Export Countries: Sri Lanka, Indonesia

ITAR PRODUCTION AND SPATIAL REQUIREMENTS

- Scope of their business (Stages of Manufacturing involved): start
- Total number of units owned: 16
- Raw Materials Required & Sources of Procurement of Raw Material:
 - flower → local [Kolkata]
 - Kolkata

14. Area of Land: 10 yards 22' x 40'

- House - Diyung
- Production - → cutting wood
→ burning
- Storage: 1/2 15 x 15 m
- Shop -

15. Renovation and/or Expansion: start
factory + 20' x 40' - 1985

16. Old Kharkhana -

- Time period of operation:
- Location:
- Area and Height: 15ft
- Materials used in construction: copper ma
- Reason for renovation/Expansion:
- Attributes of old Kharkhana not followed in the new

Storage can be open as needed for [finished & unfinished]

17. New Kharkhana -

- Time period of operation:
- Location:
- Area and Height:
- Materials used in construction:
- Newly incorporated spaces:
- Newly adopted technology:

19. Is the planning based on Vastu? No

20. General Process of Production:

21. Zones involved in Production, their areas & →

POINTS TO BE NOTED WHILE DOCUMENTING THE KHARKHANAS

- Orientation & Approach Road width:
- Setbacks: N/A
- Materials of columns, walls, roofs, Openings: Bair, RCC, etc.
- Hierarchy of spaces:
- Zoning:
- Reason/Logic behind the Zoning:
- Types of Openings present:
- Relation between space - activity - opening:
- Sizes and orientations of openings:
- Ventilation:
- Lighting:
- Circulation:
- Movement of materials:
- Thermal comfort:
- Flooring:
- Safety interventions:
- Colours and Texture:
- Roofing:

WORKER LIFE AND COMMUNITY

- Number of workers involved at each stage and their roles:

3 people	1 person
1 person	1 person
1 person	1 person
- Gender & Community of the majority Workers: male
- Where do they come from?
- Residence to Kharkhana distances: Sundarban / 100 km
- General Routine of the Workers: morning, evening, night [start] home
sandal wood - 6-7 day
- Have they worked in more than one factory?
- Which Kharkhana layout is easy to work with and why?

Commercial

Shop Name:

- Age of the shop:
- Area and height of the shop:
- Average area and height of the shops in market:
- Abutting Road width:
- Age of the market:
- Average ticket size:
- Average footfall
 - Locals
 - Nearby cities / towns
 - Foreigners
- Total number of shops in the market:
 - Ittar
 - Other
- Major typologies of shops present: (built typology and goods sold)
- Evolution of the market:
- Renovations done for the market:
- Infrastructure facilities available (Toilets, Electricity, Water, Drainage)
- Construction materials:
- Average age of the buildings:
- Frequency of renovation and expansion:
- Export / Import provisions:
- Storage Provisions:
- Loading/Unloading:
- Any government provisions:
- Parking:
- Issues:
- Built height ratio:
- Maximum and min road widths:
- Logic behind the market morphology and evolution:
- Character observed
- Is the area a landmark?
- Will shifting the shops impact – Ittar sales/ other businesses
- Generate a mental map/ Imageability
- Issues
- Does the market need a redevelopment?

Demographic

Name: _____

Designation: _____

MAPS

- Land use
- Soil Profile
- Public vs Private land
- Vacant land
- Contours
- Natural Drain and Slope
- Electricity
- Drainage system
- Vegetation and Water bodies
- Evolution – built open
- Protected Zones by ASI

DEMOGRAPHICS

- Occupational Statistics over years
- Domestic Tourist footfall over years
- International Tourist footfall
- Wild Life Sanctuary and Gauri Shankar Temple footfall
- Migration – Population Growth

RnD

Name: _____

Designation: _____

- Year of Establishment of FFDC:
- Role of FFDC in Kannauj
- Total number of Ittar Kharkhanas: _____
- First and Oldest Ittar manufacturer: _____
- How did Ittar start at Kannauj?
- What are the traditional & modern techniques involved in production?
- Environmental impacts
- Which is more efficient old or new?
- Which is more popular and widely used?
- Pros & cons of traditional factory setups vs modern
- Area required - traditional vs modern setup
- Major sources of Raw material.
- Total number of families involved in the industry: _____
- Number of factory owners:
- Number of workers: _____
- Major Gender and community involved: _____
- Location - workers settlements
- Location - owner settlements
- Growth pattern of industry over past 15 years:
- National and International importance of Kannauj
- Visitors and Tourist footfall
- Scope of Perfume Tourism
- Footfall expected if Kannauj opens up for tourism
- Number of Students/ Researchers associated with RnD
- Present infrastructure available for RnD
- Projected number of researchers / growth pattern of researchers
- Area and spaces required for RnD block
- Other major occupations of city
- Immigration - Migration trends
- Local unions/ Associations
- Opinion on proposed perfume park
- Existing policies for conserving the Traditional Knowledge System

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Contextual Inquiry Artefacts



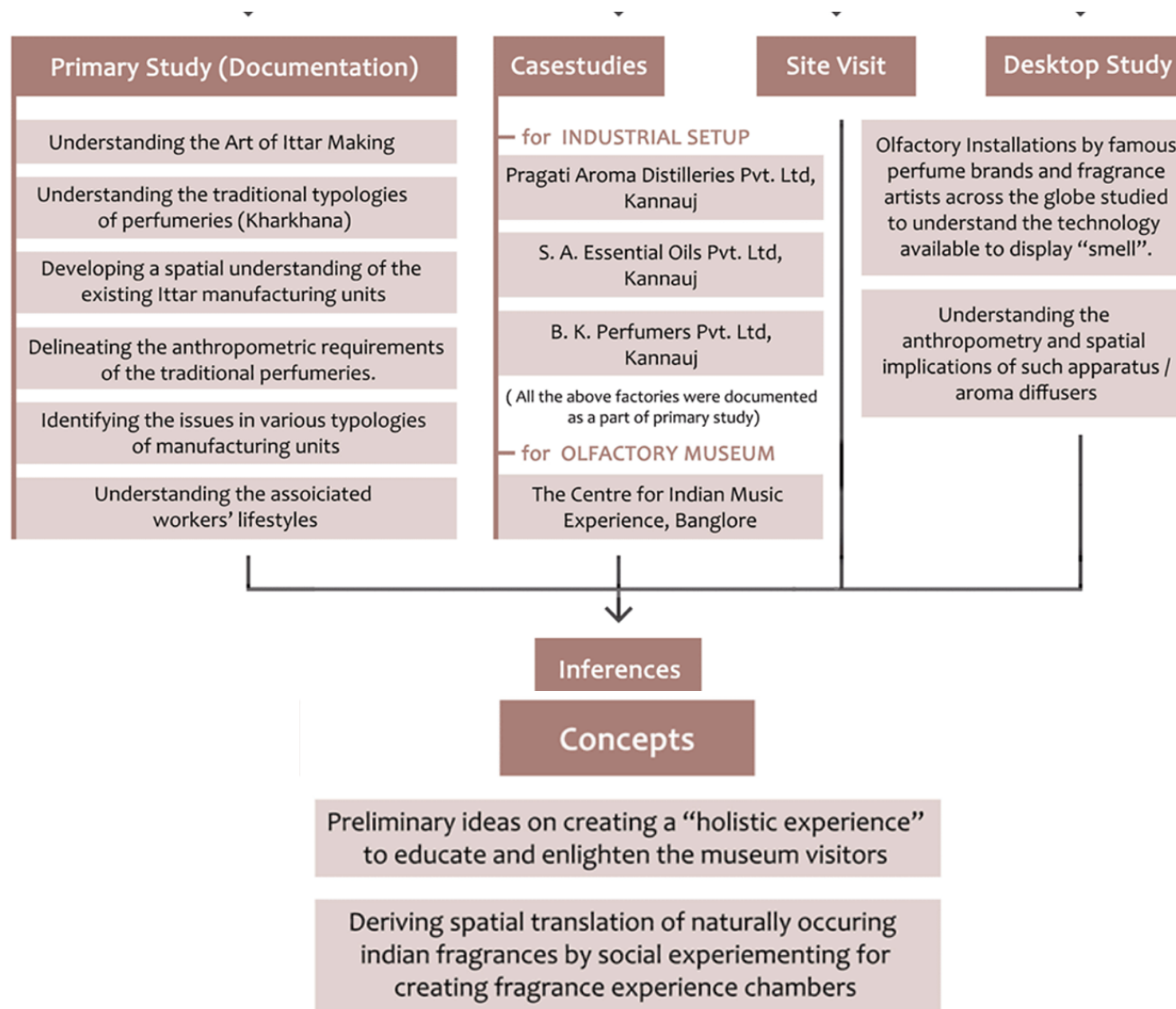
Minutes of the meeting
btwn Attar Association & FFDC about
"perfumers' thoughts" on Ittar Park

Landuse Map
for site selection

Tour & Workshop Brochure
understanding the program & existing
itinerary of Ittar tourism

Ittar
for studying and understanding
perceptions of fragrances

Documented Plans
for understanding the spatial logic



Introduction:

Ittar, also known as Attar, is an aromatic oil extract obtained solely from organic sources through steam or hydro distillation. These organic sources include roots, flower petals, leaves, bark, and spices. The use of traditional fragrances is largely popular in the Middle Eastern countries and the Indian subcontinent for its aromatic and medical properties. The history of making Ittar is quite ancient, with some sources dating back to Egypt. In India, it is believed to have originated more than 60,000 years ago. Kannauj, a small town in Uttar Pradesh, India, is popular for manufacturing Ittar oils across the globe. This paper delves deeper into the history of Ittar and its significance in Kannauj.

Ittar and Its Differences with Perfume:
Ittar is often confused with perfumes, which are alcohol-based fragrances. Though the science behind the

processes used to extract perfumes is like that of Ittar, the composition is very different. It is largely because of its organic nature Ittar is also used as a flavoring substance. Due to its non-alcoholic nature, Ittar is largely used by the Islamic population all over the world.

Ittar across the Globe:

The word Ittar is believed to be derived from the Persian word 'itir'. Aromatic essential oils with healing and medicinal properties have often been mentioned in sacred texts of many civilizations. The earliest form of Ittar known was in Egypt, where oil was used for various rituals. In Indian context, Gandhashastra is a component of Ayurveda that deals with the science of fragrances. It is believed that some saints were burning a piece of wood along with some herbs in a forest – when a passer-by noticed a fragrance and

soon spread the word to a village nearby. However, it gained popularity during Moghul's period in India. Most of the Mughal emperors and their queens were fond of Ittar fragrances and this led to the discovery and development of Ittars in India.

Kannauj – Ittar Nagri:

Kannauj is an Indian city in the territory of Uttar Pradesh, is frequently alluded to as "The Attar City" or "The Perfume City of India" and is arranged at - 27.07°N 79.92°E directions. It is an old city on the banks of the sacred River Ganges, 80 km from Kanpur, Uttar Pradesh, and 100 km from Lucknow. The city is served by two significant railway stations- Kannauj rail route station and Kannauj City rail route station. The closest air terminal is Kanpur Airport arranged at a 2-hour drive from the town.

Historic Significance:

Kannauj has a rich history and is mentioned in many ancient Indian texts like the Mahabharata and the Ramayana. It is also believed to be known to the Greco-Roman progress under the name of Kanagora or Kanogiza. During the medieval period, Kannauj was an important city under Emperor Harsha of the

Vardhana dynasty, who made it his capital. The city witnessed growth in the production of traditional fragrances during this period, and it became a point of convergence for the three dynasties, particularly the Gurjara Pratiharas, Palas, and Rashtrakutas, between the eighth and tenth century. The contention between these three dynasties has been referred to as the Tripartite battle by many historians. During the medieval period, Kannauj was captured by Sultan Mahmud of

Ghazni in 1018. Alberuni has referred to "Kanoj" as the key land point to disclose walking distances to other Indian urban communities. The "wonder of Imperial Kannauj" ended with Iltutmish's triumph, and Sher Shah Suri defeated Humayun at the Battle of Kannauj on 17 May 1540. This is believed to be the last mention of the city's name in history.

The city has been an important center of trade and commerce since ancient times. Its strategic location adjacent to the river Ganga gave it an incredible breadth to exchange goods and commodities. The city served as the capital for Gupta Dynasty, and it housed various royals and members of the court who preferred a luxurious lifestyle. Hence, it was easier to set up the first-ever large-scale extraction of natural fragrances within the administrative zone.

It is largely believed that the extraction of aromatic oils in Kannauj was initiated by Raja Harshvardhan of the Gupta Dynasty. These Ittars were generally based on roses which were procured from Aligarh. Soon the industry flourished with the expansion of the Empire. The natural fragrances produced in Kannauj were popular not only among the people of the Indian subcontinent but also among the traders who used to visit the city from different parts of the world. The fragrances were used for various purposes such as perfuming clothes, body, and hair. The industry was so lucrative that it remained the mainstay of the local economy for centuries. In 1000 BCE when Sher Shah Suri Marg was set up - trade was done through the river Ganges and Grand

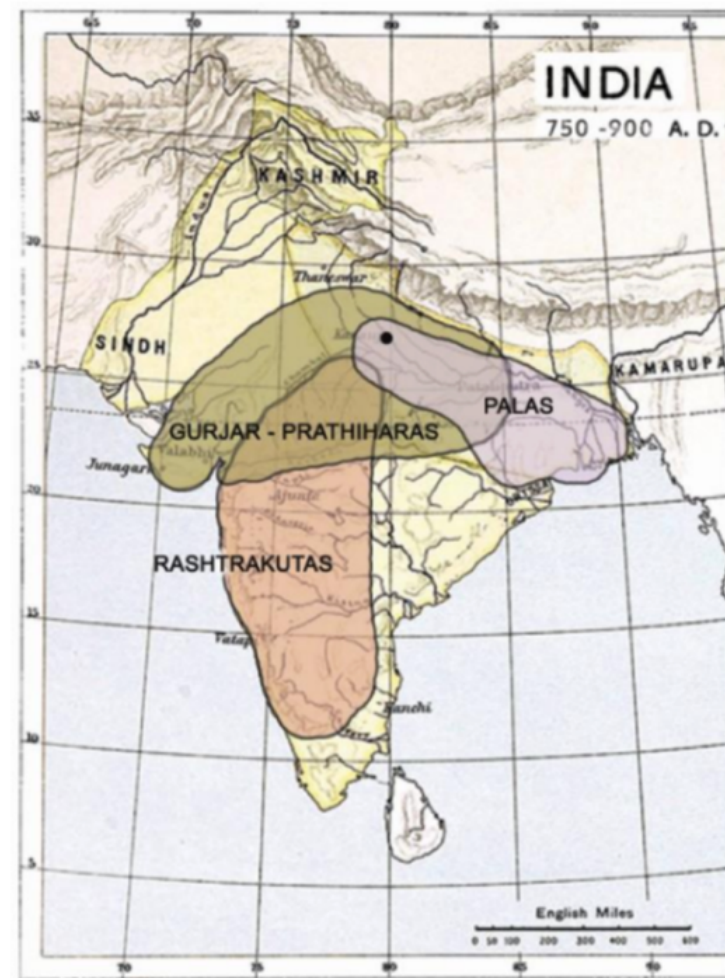


Figure 3 Maps showing location of Kannauj in various Empires, Source: Google, Graphic: Author

Trunk Road. Exports were done to most South Asian and Middle Eastern Countries through the trade route. The Grand Trunk Road was one of the longest and oldest roads in South Asia, stretching over 2,500 kilometers from Bangladesh to Pakistan. It was built during the Mauryan Empire in the 3rd century BCE and later renovated during the Mughal period. The road played a crucial role in the development of trade and commerce in the region. During the Mughal period, Kannauj continued to be an important center of trade and commerce. The natural fragrances produced in Kannauj were exported to different parts of the world, including Europe. The Mughal Emperors were known for their love for fragrances, and Kannauj was one of the main suppliers of natural fragrances to the Mughal court. The Mughals also established their own perfume industry in Kannauj, which

was known for producing high-quality fragrances.

However, after the battle of 1540 CE, where Sher Shah Suri defeated Humayun, there has not been any mention of Kannauj in the texts. The battle of 1540 CE was a turning point in Indian history, as it marked the beginning of the decline of the Mughal Empire. The city was later ruled by various dynasties such as the Nawabs of Awadh, the Marathas, and the British. The natural fragrance industry in Kannauj continued to thrive even under the British rule, and the fragrances produced in Kannauj were exported to different parts of the world.

Today, Kannauj is still known for its natural fragrances, and the fragrance industry remains the mainstay of the local economy. The city is also known for its rich cultural heritage and the production of traditional attar bottles. The local people of Kannauj are

skilled artisans who have been practicing the art of making attar bottles for generations. The bottles are made using traditional techniques and are handcrafted with intricate designs.

In conclusion, Kannauj has a rich history and culture, and the city's economy has been largely dependent on the production of natural fragrances. The extraction of aromatic oils in Kannauj was initiated by Raja Harshvardhan of the Gupta Dynasty, and the industry flourished with the expansion of the Empire.

Introduction to Ittar extraction and the trade routes

The extraction of aromatic oils in Kannauj is believed to have been initiated by Raja Harshvardhan of the Gupta Dynasty. The city served as the capital for the Gupta Dynasty, housing various royals and members

of the court who preferred a luxurious lifestyle. Hence, it was easier to set up the first-ever large-scale extraction of natural fragrances within the administrative zone. These Ittars were generally based on roses, which were procured from Aligarh. Soon the industry flourished with the expansion of the empire.

The strategic position of the city Kannauj adjacent to the river Ganga gave incredible breadth to exchange goods and commodities. In 1000 BCE, when Sher Shah Suri Marg was set up, trade was done through the river Ganges and Grand Trunk Road. Exports were done to most South Asian and Middle Eastern countries through the trade route. However, after the battle of 1540 CE, where Sher Shah Suri defeated Humayun, there has not been any mention of Kannauj in the texts.

Demographics of the Ittar Nagari (as of December 2019)

With a population of around 84,000, Kannauj has been historically significant, serving as the center of several Indian dynasties and as a hub for the trade of various goods, including perfumes and aromatic oils. The demographics of Kannauj reflect the city's unique economic and cultural heritage. As of December 2019, an estimated 45% of the city's population, or 37,000 people, were involved in the aroma industry, directly or indirectly. This includes farmers cultivating flowers for extraction, distillation unit workers, and agarbatti makers who rely on the waste or by-products of the extraction process.

The aroma industry is an essential part of Kannauj's economy, and it contributes significantly to the city's overall income. The yearly production

of ittar in Kannauj is estimated to be worth around 1000 crores, with a projected market growth of 32.1% by 2021. The industry also supports various self-help groups (SHGs) involved in agarbatti making, providing employment opportunities to women and contributing to the city's socio-economic development. Apart from the aroma industry, Kannauj also has a thriving agriculture sector, with the cultivation of crops like wheat, rice, and pulses. The city's strategic location on the banks of the River Ganges has made it a significant center for trade and commerce for centuries. It is well-connected by rail and road networks, making it accessible to neighboring cities and states.

Kannauj is also famous for its exquisite traditional handicrafts, including textiles and pottery. The city has a rich cultural heritage, with a unique blend of Hindu, Muslim, and

Mughal influences reflected in its architecture, food, and festivals. The city is home to several ancient temples and mosques, attracting tourists and pilgrims from across the country.

In recent years, the government of Uttar Pradesh has made efforts to promote Kannauj as a tourist destination, highlighting its rich history, culture, and the aroma industry. The city has also been designated as a 'smart city,' with various infrastructure and technology-driven projects aimed at enhancing the quality of life for its citizens and promoting sustainable development.

Image of the City

Kannauj is largely characterized by structures that are centuries old – making the city look as if it is stuck in time. This is largely because the built structures along with the art of Ittar

making are passed on to generations – making the city rich in heritage.

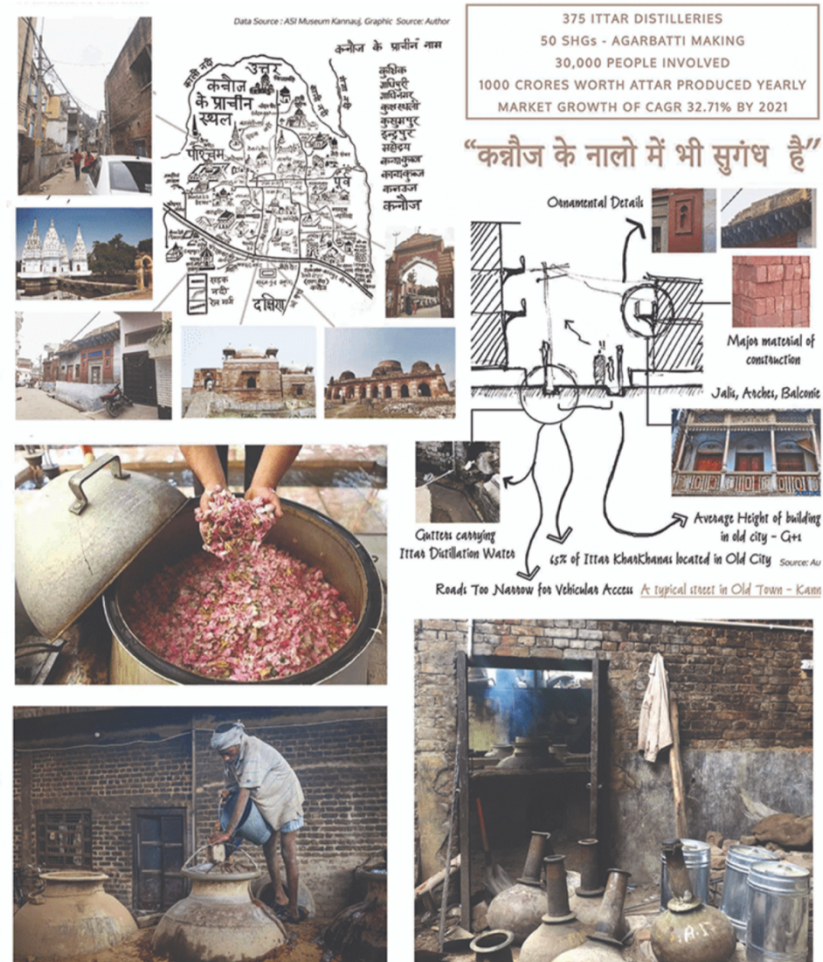
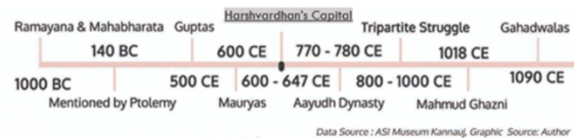
Brick and stone are common construction materials, while arches and openings with intricately carved frames are the dominant decorative elements.

Archaeological findings reveal that Kannauj was once the foremost city of northern India where once art and culture flourished. Every now and then pottery, coins, terra cotta and sculpture are dug up by the common man in the course of work while ploughing his land or digging the foundation for construction of a house – which are exhibited in the ASI museum. The Bala-Peer shrine is a twin dome monument which is protected by ASI. With more and more heritage being uncovered – Kannauj is being planned to be included in the heritage tourism map of India. Increased tourism acts as a

great opportunity for the traditional knowledge system of Ittar to reach out to greater masses and spread awareness. (Trivedi, 2019) The water obtained as a by-product from hydro distillation is generally let out into the “gullies” along the street edges. Since the water is used to condense aromatic oils – it carries a sweet smell to it – making the streets fragrant. This has been mentioned in several times in various articles and books over years. Hence, Ittar is not only an integral part of Kannauj’ s society and culture, but also is an intangible essence of the city’s fabric.



Figure 5 Kannauj City – 2019 , Source: Google Earth, Graphic: Author



The Art of making Ittar

The process of Ittar extraction is a traditional knowledge system that is passed on from generations. Just like cooking recipes, each Ittar producing family has its own recipe for each fragrance it extracts. The methods used to extract aromatic oils in Kannauj has remained same since centuries. In order to understand the process of extraction better, the study has been divided into the Raw Materials, Extraction Methods, Storage Methods, Packaging, By Products & Waste Management

Raw Materials

As mentioned earlier, Ittar or Attar or Ittar is a type of natural perfume

extracted from flowers, herbs, spices or barks into base oil such as sandalwood oil. There are set of few basic ingredients that are used to extract Indian Ittar. A combination and mix of the ingredients in various proportions yields new fragrances. Majority of the raw materials are locally procured apart from a few which are imported from Malaysia. Domestically, Oudh, Gulab, Kesar, Shamama are brought in from various parts of the country. The above image shows various raw materials that are used to produce Soft Indian Ittar. These are extracted using "Soft methods of Extraction" – that is through hydro distillation. The equipment used to extract oil from the above ingredients is traditional setup called "Deg and Bhapka" which is manually operated and is being used for extraction over centuries. The process involves a traditional flame for heating the delicate mixture

and hence the aromatic oils extracted from roots and petals are called Soft Ittar. Along with flower petals, grasses and roots animal secretions are also popular raw materials. Kasturi, also known as Musk is a famous fragrance which is obtain from deer secretions. Amber is also a famous fragrance obtained from Whale excreta which is priced as world's most expensive commodity. It generally takes about 100kgs of flower petals to produce 5gms of pure essential oil (without base). One litre of such pure oil is priced at 5,00,000 INR.

The above are the raw materials popularly known as Hard Ittar. These are extracted using "Hard methods of Extraction" – that is through steam distillation. The equipment used to extract oil from the above ingredients involves boilers and other heavy mechanically operated machines that produce steam and high temperatures. The process involves

steam and high pressure to separate the oil from wood and bark-based ingredients and hence the aromatic oils extracted are called Hard Ittar. Any fragrance oil is generally made by combining aromatic vapours with a base. As mentioned earlier, the base in case of perfumes is alcohol whereas in case of Ittar it is an organic oil. However, the base oil that is largely used to capture the aroma in making of Ittar is Sandalwood Oil. However, due to ban and restrictions on Sandalwood, a synthetic chemical called D.O.P is used. Further, firewood is used to provide fire to the Deg along with Cow Dung Cakes.

Extraction of Oils

Ittar-making is a labor-intensive process, requiring incredible ability, expertise and persistence. The basic procedure involves heating up a

container full of raw material to obtain vapours using water or steam. The procedure which uses water for heating up is called Hydro distillation and is used to extract soft Ittar, whereas, the procedure that uses steam is called Steam distillation which is used to extract hard Ittar. These vapours containing oil are later condensed to obtain the aromatic oil.

Extraction of Soft Ittar

Soft Ittars are extracted using the centuries old distillation technique called Deg and Bhapka method. This process of Hydro distillation provides temperatures just enough to separate oil from the ingredients without burning them. Following are the instruments used –

- Deg or Still - The process is carried out in copper stills called “Degs” as was done centuries

ago. The lid of the still is called “Sarpos” and is also made of copper having opening for connections to one or two receivers.

- Bhapka or Receiver - The receiver is built of copper and is of round shape with long neck, for case in connection with Deg via Chonga. It is known as Bhapka and it acts as condenser as well.

- Chonga or Bamboo Condenser - The still and receiver are connected by a Chonga. This is a hollow bamboo pipe wrapped with twine for insulation.

- Traditional Bhatti or Furnace - It is made up of bricks and clay. Normally wood or coal is used for heating. Heat is controlled manually. (Attar Making, 2017)

Raw materials which are brought for extraction are generally from nearby farms. This is because the flowers, on losing their freshness, are found unfit for extraction as the yield and

fragrance is lost. It is similar to using stale vegetables for cooking – that is the essence, and the flavour is lost and compromised. Hence, fresh flowers are brought from farms and spread for a few minutes before they are measured and prepared to be put into the burner for extraction.

Once they are put into the vessel called “Deg” water/ steam is added to the mixture.

Once the raw materials and water are added in required proportions, the Deg is sealed using wet cloth and chikni mitti. This is to prevent loss of aromatic vapours from Deg.

The Deg is now heated on wood and cow dung cakes fire. The temperature is controlled by putting in more wood/cow dung cakes or by removing the same. While boiling the raw material in the Deg there is considerable increase in pressure. The vapours now pass through Chonga –

a bamboo connector. These vapours are collected and condensed in Bhapka which is already filled with a base oil. (Attar Making, 2017)

The Bhapka is copper made and generally round with a long neck. The fragrance of flowers (raw material) is obtained by condensing vapours into the base material, which is primarily sandalwood oil.

The mouth of the Bhapka is sealed by wrapping coarse cloth around the bamboo pipe and pushing it inside the condenser surrounded by cold water. This water surrounding Bhapka is changed manually whenever required.

Overnight, as the oil cools down, the water separates from it. In the morning, the water is poured off from the oil and put back into the still. Freshly picked flowers are added, and the process begins anew.

This process will be repeated for fifteen to twenty days, until the sandalwood oil is completely saturated with the fragrant oil of the flowers.

Extraction of Hard Ittar and Essential Oils

Hard Ittars are synthesised using steam distillation and pressure. The traditional setup fails to achieve the high temperatures required to extract the oil. Water from an underground tank or reservoir is passed into the boiler. For firing the boiler coal is used.

The steam generated is carried through pipes into a massive extraction container where the raw material is loaded.

The hot steam separates the oil from the ingredient – which is generally wood. (Kannaujia, 2019). These vapours consisting of steam and oil

are passed into a condenser which liquifies them.

Once liquified, the result is a mixture consisting oil and water, which are further separated out in a receiver due to immiscibility. (Kannaujia, 2019)

The method is efficient in extraction of Sandal oil and other essential oils. However, due to the lack of any base oil – the set up can be used to produce only essential and pure oil extracts.

Further, due to the high and uncontrolled temperatures, the apparatus fails to extract oils from flowers as they are burnt.

The apparatus used is space consuming and requires a lot of capital investment – hence, only a few dedicated industries have the set up. (Kannaujia, 2019) with the fragrant oil of the flowers.



Figure 9 Raw Materials - Soft Ittar , Source: (Trivedi, 2019), Graphic: Author

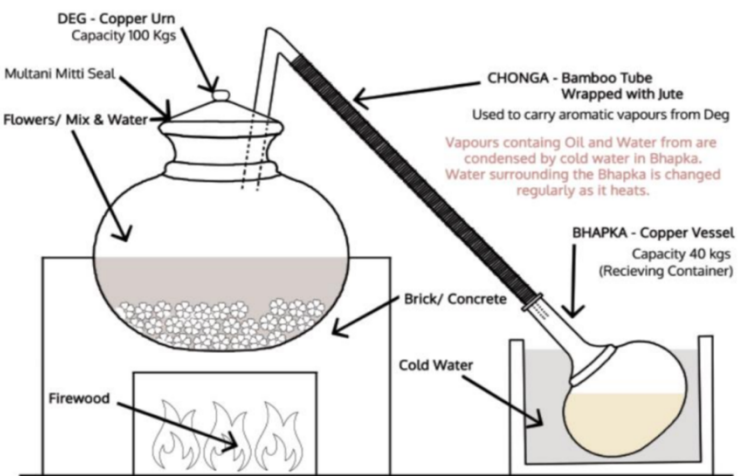


Figure 12 "Deg and Bhapka" Traditional method of Ittar extraction , Source: Author



Data Source : Local Artisans, Graphic and Image Source: Author

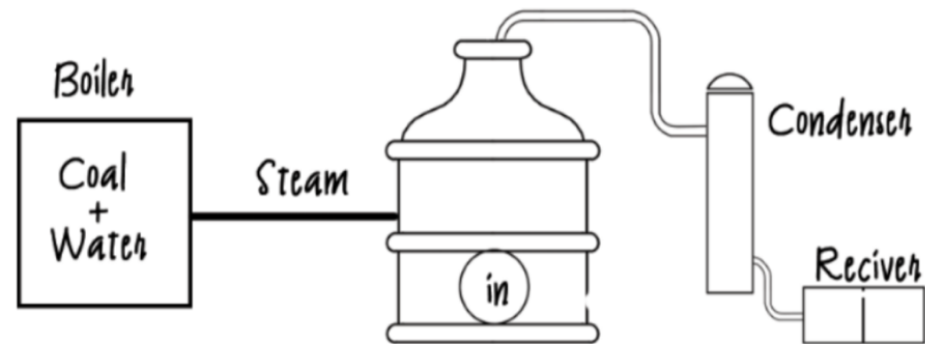


Figure 15 Schematic representation of Steam Distillation , Source: Author



Figure 16 Equipment for steam distillation , Source: Author

Micro Climate

The attar manufacturing for floral type takes place in remote places because the flowers are required to be processed quickly after plucking. Hence, these extraction units are generally setup closer to the spaces that produce flowers. However, not all flowers give yield oils or have aroma. Only specific climatic conditions yield a profitable amount of extract. Further not all extracted oils smell the same or have quality fragrances. The industry is largely dependent on the climatic factors. It is somehow because of the fertile Gangetic Plains around Kannauj that flowers cultivated nearby are found to be most suitable for the production. (Pushparaj, 2019)boiler. Thus, the quality and the aroma of the fragrance largely depends on the following factors:

- Quality of ingredients,

- Ingredients in the Deg,
- Cooking temperature,
- Cooking days/ duration,
- Sealing quality and strength,
- Base oil used.

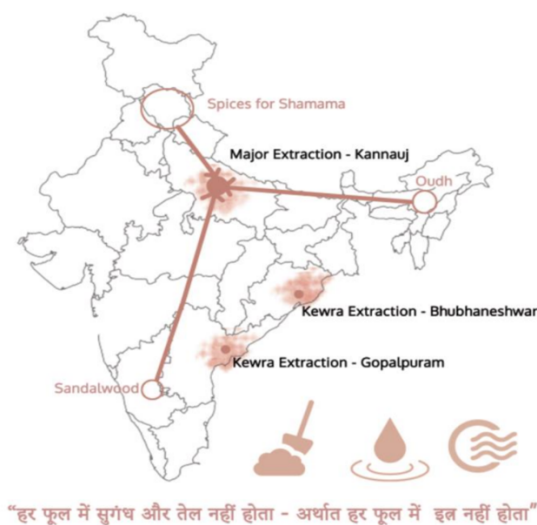


Figure 17 Ittar across nation , Source: Author

Purification & Storage

Once the Ittar is condensed into Bhapka, the mixture is allowed to settle down for a day so that

the water and oil are separated due to immiscibility. Once the layers are separated, water is drained out from the Bhapka from through a small puncture existing at the end of the vessel.

The oil left in Bhapka still retains moisture that is difficult to be separated manually. Hence, the oil is transferred into a storage container called “Kuppi”. Kuppi is a flask like container made from leather of animals – generally camel. The reason for making these bottles using leather due to the semi-permeability of leather towards water when exposed to sun. When the Kuppi is sun dried the moisture trapped inside is let out and the oil is retained. This mechanism is similar to that of sweat secretion. The flasks are sun dried repeatedly for several days after which the Ittar is stored in dark rooms for aging. (Trivedi, 2019)

Ittar is generally stored in glass ware and sold in small glass bottles called Ittardan. Glass is preferred for the purpose as it does not react with oil. These glass Ittardans are generally manufactured in bottling plants in Firozabad, Uttar Pradesh and Thane, Maharashtra.

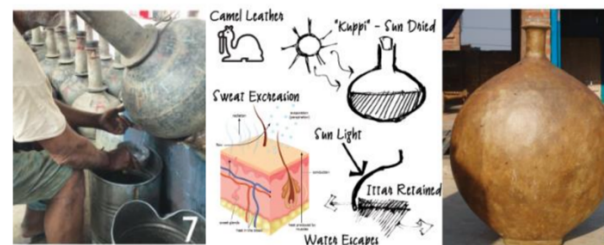


Figure 18 Purification of extracted oil manually and via Kuppi , Source: Author



Figure 19 Storage of Ittar in Kuppi and Ittardan , Source: Author

Waste Disposal and by products

The major by-products of the Ittar industries are the remains of the flowers in Degs after vapour extraction and water. The residue from Degs is generally in form of soot which is collected and stored. This residue is dehydrated aromatic plant material which when burned produces fragrance. Hence, the residue is used for making incense sticks.

Agarbatti making industry in Kannauj is a household industry which is largely dependent on the Ittar Kharkhana for its raw materials. The residue procured from Ittar factories is mixed along a few flammable substances and hand rolled onto sticks. The occupation is dominated by females whereas men take part in Ittar making.

The wastewater from distillation carries a faint fragrance of Ittar. This

when let out openly into the drains of Kannauj carries the aroma through the entire city. Hence, it is often said that “even the drains in Kannauj have fragrance”. (Pushparaj, 2019)



Figure 20 Residue from Ittar Industry and Agarbatti making , Source: Author

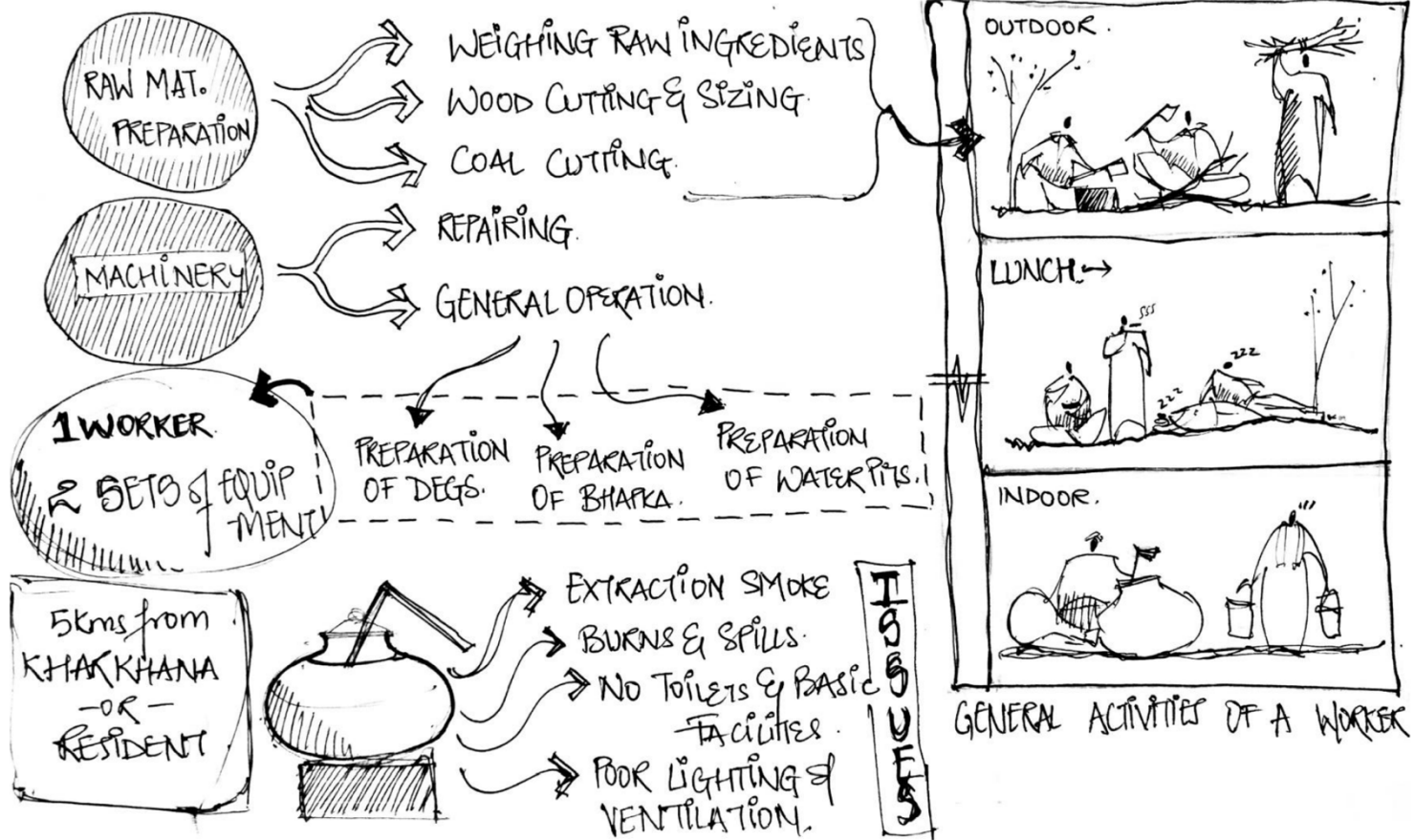
Case studies

The case studies are identified according to the building function i.e. various perfumeries from Kannauj have been studied for understanding the design of Kharkhana/ factory while Centre for Indian Music Experience, Bangalore is studied for designing the sensory museum. Further, olfactory installations across the globe have been studied via desktop to understand various equipment available to display fragrances.

Physical Installations - Inferences

Create visual curiosity using levels. Maintain a visual connectivity using levels throughout the site or build form. Divide the museum displays in

terms of temporary and permanent displays. Create environment for permanent displays as the permanent artifacts displayed generally state facts and are perceived by the majority of the populace in the similar way. Create retail spaces and shops. Create an identity based on memory and association of personal experiences. Use light to create drama, create emphasis using cut-outs and openings. Use sensory cleansers wherever required. Create views and vistas and incorporate natural features of the site Use technology to interact and create a better experience. Use staggered arrangement of walls to create curiosity and define movement. Use varied ceiling heights to create transition i.e. use scale & proportion to emphasize grandeur and facilitate way finding. Use colours, textures, materials and light to enhance the overall sensory experience.



[illegible][illegible]

32

Museums largely dealing with visual sense display the information through an artifact or an information board, whereas museums dealing with music (aural sense) display the intangible through speakers or headphones – but how does one display smell? Many fragrance artists and famous fragrance brands across the world have worked towards creating installations that help display smell.

Architects Diller Scofidio + Renfro design the 'Art of Scent' show at MAD, New York

The fragrance-releasing “dimples” are designed by Diller Scofidio + Renfro. DSR’s installation for “The Art of the Scent” embraces the ephemeral purity of olfactory art itself. Their minimalist exhibition is, like any good minimalist work, more complex than it first appears. The architects lined three walls of the nearly empty gallery space with a row of gently

sloping, almost organic “dimples.”
Source: (Eichblatt, 2012)

Each identical dimple is just large enough to accommodate a single visitor, who upon leaning his or her head into the recessed space is met with an automatic burst of fragrance released by a hidden diffusion machine. The exhibition also includes an interactive salon where the scents can be experienced in a more social setting. Using a custom iPad app designed by DSR, visitors select an adjective and noun to describe each scent, and as their opinions are logged, a collective impression of the scent is revealed as a projected word cloud.

The Art of Scent by Perfumery & Co
Perfumery & Co. at The Dubai Mall had launched the Art of Scent Exhibition that took the visitor on an exquisite aromatic journey where the

works of art are perfumes. The brainchild of Perfumery & Co, this unique exhibition takes visitors on a fragrant journey to explore perfume as a work of art. It has been curated by the former New York Times perfume critic, Chandler Burr in collaboration with Art Emaar and marks the third original exhibit following Art of Scent exhibitions in Barcelona and New York. To extend the understanding of the scent medium, Burr has paired each work of scent art with a stylistically and technical similar work of visual art, chosen from Art Emaar's extensive collection of contemporary works - displayed in Fashion Avenue. (Release, 2018)

AIR – Urban Olfactory Installation

The Air installation consists of three bubbles. The bubbles, designed in collaboration with Esa Vesmanen, contain Hilda Kozári's personal memories and experiences of the

three cities in olfactory and visual formats. Source: (Regine, 2006)

The images of the video are transparent like air and vague like the pictures of her memory, leaving space for the spectators to make their own interpretations. The accurate definition of the urban landscapes is given by the sense of smell, which brings to mind different memories. The odour of a city is not just about the sea, wind, parks, buildings and garbage, but also about people, the living environment, and its emotional, cultural and industrial life connected to memory. As in a personal perfume, the smell of the city depends strongly on the balance of odours. The perfumes are olfactory translations of the definitions which Hilda Kozári has chosen to create the atmosphere of each city. Several effects were used to give the impression of pollution: juniper tar oil for a smoky impression, nutmeg and synthetic compounds to

represent the gasoline and the oily, greasy effect of a garage smell.

Fossa Olfactoria - After Architecture

The setup is located in Kirkland Gallery, Cambridge, Massachusetts and is designed by After Architecture. Through the use of essential oils, heat and air, a tactile and olfactory experience manifests in Fossa Olfactoria. While scent is oft unexplored or completely omitted from serious discussions of architecture, scent and odour shape experience, occupancy, and comfort in powerful ways. (After Architecture, 2020)

This installation brings the viewer into the epicentre of olfactory experience - the spatial cavity where the olfactory bulb is located - playing on notions of scale, phenomena, and bodily experience. An immersive, fleshy fabric membrane obscures an undulating massing of one thousand

balloons. The balloons act as both sculptors of space and vessels of scent. Each balloon contains a drop of lavender oil which is released into the air as the balloons deflate, producing a pulsing wall that diffuses scent gradually.

Olfactory Installation by Robert Stadler

The installation is 100% Illusion, Robert Stadler: opening of the Grand Perfume Museum, Gare Saint-Lazare, Paris Railway station 2015. Five bells scattering different odours are suspended in a tubular structure. By sliding under these bells to discover the different odours – amyl vinyl carbinol, linalyl acetate, camphor and coumarin – the passer-by is unknowingly initiated to the art of composition. Under the fifth bell, bigger, he discovers the final, so familiar, agreement born of the

rigorous assembly of the four other ingredients: the lavender accord. (Bonjour Paris Editors, 2017). 100% Illusion, the installation of designer Robert Stadler created in partnership with SNCF Gares & Connexions to celebrate the opening of the Grand Perfume Museum, offers travellers and residents of Gare Saint-Lazare an astonishing experience and the discovery of the art of perfume composition.

The Senses: Design Beyond Vision - Cooper Hewitt, Smithsonian Design Museum

Explore experimental works and practical solutions designed to inspire wonder and new ways of accessing our world. Sensory design recognizes that we understand and navigate the world with all five of our senses. Organized into nine thematic sections, The Senses demonstrates

that by opening up to multiple sensory dimensions, designers reach a greater diversity of users. Maps that can be touched as well as seen facilitate mobility and knowledge for sighted, low vision, and blind users. Audio devices translate sound into vibrations that can be felt on the skin. Tableware and kitchen tools use colour and form to guide people living with dementia or vision loss. These innovations are beneficial to all users as sensory design enhances awareness of the body and creates new emotional terrain through its stimulation of our visceral responses.



Figure 49 Olfactory Installation by After Architecture , Source: (*After Architecture*, 2020)



Figure 50 Olfactory Installation by Robert Stadler , Source: (*Bonjour Paris Editors*, 2017)



Figure 46 An Olfactory installation at MAD, New York , Source: (*Eichblatt*, 2012)



Figure 47 Olfactory Installation in Dubai Mall , Source: (*Release*, 2018)



Figure 48 An Urban Olfactory Installaion , Source: (*Regine*, 2006)

Digital Adaption-Inferences

Cultural processes refer to the activities and practices that define the shared beliefs, values, customs, and traditions of a particular group or community. In recent years, interactive websites have emerged as a powerful tool for engaging people in cultural processes. By incorporating multimedia content, interactive features, and user-generated content, these websites enable people to learn about and interact with cultural traditions in new and exciting ways. In this write-up, we will explore how cultural processes can be made more engaging by using interactive websites, using relevant case studies to illustrate their impact.

One of the most notable examples of an interactive website that has transformed cultural engagement is

the Google Arts & Culture platform. Launched in 2011, this website features collections from over 2,000 museums and archives around the world. Using high-resolution imagery, virtual tours, and interactive exhibits, visitors can explore artwork, artifacts, and historical sites in unprecedented detail. The platform also features a range of interactive features, such as quizzes, games, and augmented reality experiences, that allow visitors to engage with cultural content in a fun and meaningful way. One example of this is the Art Camera feature, which uses high-resolution imagery to enable visitors to zoom in on the smallest details of artwork, revealing hidden nuances and insights.

Another example of an interactive website that has transformed cultural engagement is the Smithsonian Learning Lab. This platform provides

free access to over a million digital resources from the Smithsonian Institution's collections, including photographs, manuscripts, audio recordings, and videos. Using a range of tools and features, visitors can create personalized learning experiences that allow them to explore cultural traditions and artifacts in new and engaging ways. For example, visitors can use the website's "create a collection" feature to curate their own collections of artifacts related to a particular topic or theme. They can also use the platform's "teaching resources" section to access lesson plans and activities that integrate cultural content into classroom instruction.

A final example of an interactive website that has transformed cultural engagement is the Myseum of Toronto platform. This website provides a virtual platform for sharing

and celebrating the diverse cultural traditions and histories of Toronto. Using multimedia content, interactive maps, and user-generated content, visitors can explore the city's cultural landscape and engage with local communities in new and meaningful ways. For example, the website's "Myseum Intersections" program features a series of interactive exhibits and events that bring together artists, scholars, and community members to explore different cultural traditions and perspectives. By enabling visitors to actively participate in cultural processes, the website fosters a sense of connection and engagement that is essential for building strong and vibrant communities.

In conclusion, interactive websites have transformed cultural engagement by providing people with new and exciting ways to learn about and interact with cultural

traditions. From the Google Arts & Culture platform to the Smithsonian Learning Lab and the Myseum of Toronto, these websites are enabling people to explore cultural content in unprecedented ways. By incorporating multimedia content, interactive features, and user-generated content, these websites are making cultural processes more accessible, engaging, and relevant to people's lives. As we continue to explore new ways to use technology to promote cultural engagement, interactive websites are sure to play a critical role in shaping the future of cultural preservation and education.

Design Exploration

As a solo project, the exploration of different mediums to create a conceptual physical installation and a digital translation of the project was a challenging but exciting process. The aim was to design an interactive experience that would showcase the complexities and cultural significance of Ittar making while also highlighting the challenges faced by the craftsmen involved in the process.

Overview

To create a multisensory experience, the focus was on designing activities that would appeal to all the senses, from sight and sound to smell and

touch. The team also aimed to create activities that were immersive and educational, allowing participants to engage with the project in a meaningful way.

Research:

The first step was to research the different mediums that could be used to create the physical installation and digital translation. The team explored various options, including interactive displays, audio-visual installations, and virtual reality experiences. After considering the pros and cons of each option, it was decided that a physical installation would be the most effective way to showcase the complexities and cultural significance of Ittar making.

Narratives and Interactions:

The next step was to design the narratives and interactions for the physical installation. The aim was to create a series of activities that would allow participants to experience the

Ittar making process and highlight the challenges faced by the craftsmen. To achieve this, the team explored different alternatives for each stage of Ittar making.

Selection of Flowers:

For the selection of flowers, the team designed an activity where participants could smell and touch different flowers to understand their fragrance and texture. They were then shown how the wrong selection of flowers could result in poor quality Ittar. An alternative explored was to create a game where participants had to identify different flowers based on their smell and texture, with points awarded for correct answers.

Extraction Process:

For the extraction process, the team designed an activity where participants could extract the fragrance from the flowers themselves. They were shown how to balance the heat to extract the

fragrance and were warned about the dangers of using too much heat. An alternative explored was to create a simulation where participants could control the heat to extract the fragrance, with a display showing the effects of too much or too little heat.

Blending of Ittar:

For the blending of Ittar, the team designed an activity where participants could create their own Ittar blend using different fragrances. They were shown how to blend different Ittars to create unique fragrances and were encouraged to experiment with different combinations. An alternative explored was to create a game where participants had to identify different fragrances and match them to their correct names, with points awarded for correct answers.

Plight of Craftsmen:

To showcase the plight of the craftsmen involved in the Ittar making

process, the team designed a series of interactive activities that highlighted the challenges faced by the craftsmen. For example, they created a display showcasing the hot temperatures involved in the process and the long hours that the craftsmen had to work. An alternative explored was to create a video that showcased the lives of the craftsmen and their struggles to make ends meet.

Mood boards and Visual Language

To create an immersive experience for showcasing the traditional art of Indian ittar making, the use of Mughal art, Pichwai art, and Indian miniature style art can significantly enhance the visitor's experience, whether it's in a physical exhibition space or a website.

Imagery, Visuals, and Color:

The physical exhibition space and website can feature artwork that depicts the various flowers and plants used in the ittar making process. The use of Indian miniature style art can help showcase the intricate details of the plants, while Pichwai art can depict Lord Krishna and his connection to the art of ittar making. The colors used in both contexts must be vibrant and bold, evoking the emotions associated with the different fragrances of the ittars. The overall visual theme of the website and exhibition space must be minimalistic and consistent, with clear signage and navigation.

Audio Experiences:

Audio experiences can be used to create a sensory experience for the visitors on both the website and in the physical exhibition space. The audio used in both contexts can feature traditional music and sounds

that are commonly associated with ittar making. The use of audio can create the effect of smelling a specific ittar, evoking feelings of calmness, love, joy, or pleasantness.

Interactions and Activities:

Both the physical exhibition space and website can feature various interactions and activities that allow visitors to experience the ittar making process firsthand. On the website, visitors can virtually pick up different types of flowers used in the ittar making process, such as jasmine, rose, or lavender, and learn about the different techniques used in ittar making, such as distillation and maceration. In the physical exhibition space, visitors can experience the process firsthand by picking up flowers and putting them in a traditional Deg.

Experiential Design Experiments:

Experiential design experiments can be used to create a unique and memorable experience for visitors in both the physical exhibition space and website. For example, a section of the physical exhibition space can feature an aroma room that recreates the fragrance of specific ittars, while on the website, a similar effect can be created using visual and audio cues. Visitors can experience the fragrance and learn about the ingredients used in the making of ittar. Both contexts can also feature a storytelling section that highlights the history and cultural significance of ittar making in India.



Explored Illustrations

Background



#848484



#DFD6D1



#E0E5EE

Text



#3C2019



#000000

Flowers



#8C4653



#CA6D50



#E18679



#EED8CF



#818D6A



#3A4635

Animals and utensils



#594038



#72583F



#C7AF92



#ABA5A3



Physical Installation Exploration

One direction for this exploration, needless to say - was a physical space where visitors can experience the art of traditional ittar making. The main aim is to make people aware of the intricacies of the process and the effort that goes into it, as well as the stunning fragrances that emerge. Keeping that in mind, the design suffices as both educational and interactive, providing visitors with a unique and immersive experience.

Visuals and Sensory Stimulations:
The space is designed to stimulate all the senses, with a focus on sight and smell. The colors used in the space are earthy and warm, with shades of brown, yellow, and orange. These colors complement the natural materials used in the space, such as wood and clay. The space is filled

with the scents of various ittars, with each scent carefully curated to showcase the range of fragrances that can be created through the ittar making process.

Audio:

The space also incorporates audio elements, with traditional music playing in the background. Visitors can listen to stories and explanations about the ittar making process through audio guides, which are available in multiple languages.

Interactive Elements:

The space is designed to be interactive, with visitors encouraged to participate in the ittar making process. Visitors can pick up different types of flowers used in the ittar making process, learn about their properties and put them in a traditional Deg. The Deg is heated using sandalwood, and visitors can

experience the process of distillation first-hand. There are also opportunities for visitors to engage with the artisans and ask questions about the process.

Overall, the space provides a unique and immersive experience for visitors to learn about the art of traditional ittar making. The combination of visual, audio, and interactive elements helps to showcase the intricacies of the process and the effort that goes into it. By stimulating multiple senses, visitors are able to truly understand and appreciate the beauty of this ancient art form.





DEG

Petals to deg

A tonne of roses yeild a 100gm
of Ittar. Lorem ipsum dolor lorem
ips est. en

BHAPKA

BHAPKA

ABYU



Digital Adaption Exploration

Ittar Katha is a website designed with the primary objective of creating awareness about the traditional art of ittar making, its intricate process, and the cultural significance of these fragrances. The landing page of the website has an aesthetic that reflects the essence of the ittar making process, using visual elements and warm colors like amber, maroon, and gold to create an inviting ambiance.

The landing page of the website offers visitors a choice to visit the marketplace or experience the ittar making process. The marketplace section offers a wide range of ittar fragrances with detailed descriptions of each fragrance's ingredients and its cultural significance. The images and descriptions of the ittars are accompanied by a short history of

each fragrance, adding to the visitor's overall knowledge of the art form.

The experience section of the website provides visitors with an interactive experience of the ittar making process through a combination of visuals, audio, and storytelling. I used videos and animations to demonstrate the process, allowing visitors to see and learn about the process in detail. Visitors can also interact with the website by picking up different types of flowers used in the ittar making process, putting them in a traditional Deg, and watching the fragrance being distilled.

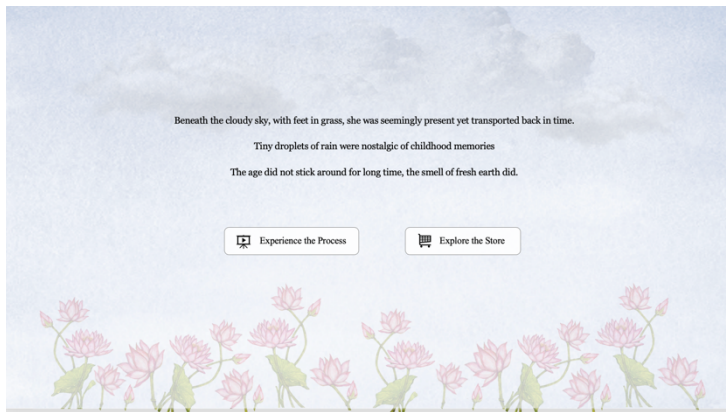
The website's layout is user-friendly, with easy navigation and clear call-to-actions. I used a minimalistic design, with relevant content and visuals that complement each other. The website's typography and font

choices are legible and easy on the eyes, and the website's overall layout is optimized for different devices, such as smartphones, tablets, and laptops.

The choice to borrow inspiration from elements in Pichwai art and Indian miniature style paintings - was influenced by the fact that both these art styles are characterized by their intricate details, vibrant colors, and unique storytelling techniques. These elements make them a perfect fit for a website that seeks to engage the user's senses and immerse them in the experience of Ittar making. The Indian miniature style art, which is known for its intricate designs and delicate brushwork, was used to depict the various flowers and plants used in the making of ittar - with the aim of creating a deeper connection between the user and the product, as they can visualize the process of

making ittar. Imagery of different flowers on the website, as well as the colors used - are meant to affect a user's sensories, since these flowers are a direct translation of the sensation of smell into a visual form. Each flower has its unique fragrance, and the colors used can trigger the user's memory of the scent. Colors were also chosen in a way that they complement the website's overall theme and aesthetic, as well as evoke specific emotions in the user.

Audio was used to create the effect of smelling a specific ittar or evoke feelings of calmness, excitement or joy. Specific musical instruments and sounds that achieve those effects - were chosen.




इत्र कथा





 Exploring the Store

 Experience the Process

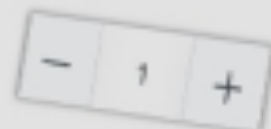


Woody Fragrances



Kasturi

Lorem ipsum dolor sit amet
Jdoff dolor set lorem



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